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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/658,522

09/08/2003

Raymond Bertholet

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BELL, BOYD & LLOYD LLP
P.O. Box 1135
CHICAGO, IL 60690

EXAMINER

SILVERMAN, ERIC E

ART UNIT	PAPER NUMBER
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1618

NOTIFICATION DATE	DELIVERY MODE
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01/28/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATENTS@BELLBOYD.COM

Office Action Summary	Application No. 10/658,522	Applicant(s) BERTHOLET ET AL.	
	Examiner Eric E. Silverman, PhD	Art Unit 1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In view of the Appeal Brief filed on 11/9/2007, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.



MICHAEL G. HARTLEY
SUPERVISORY PATENT EXAMINER

Claims 1 – 19 are pending in this action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 6, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “less than 10% of phosphorus that is present in the biomass is present in the carrier oil”. It is not clear if the recitation of phosphorus refers to elemental phosphorus, inorganic phosphorus, organic phosphorus, or some combination of these. Absent guidance in the specification, the Office is interpreting the recitation to mean elemental phosphorous only. This affords the claims their broadest reasonable interpretation, by allowing the inclusion of the organic and inorganic phosphorus in the claimed composition.

The remaining claims are rejected for depending on claim 1 without clarifying this issue, thereby incorporating the indefinite limitations of claim 1.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 3, 6, and 14 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,117,905 to Higashiyama et al (“905” or “the 905 reference”).

Note that these claims are alternatively rejected under 103(a) as being obvious over Higashiyama et al.

1. The claim limitations.

Claim 1 is a product by process claim reading on a stable oil containing one or more long chain fatty acids. The process is not given any patentable weight, except to the extent that it patentably distinguishes a property of the product. The process appears to impart the following properties on the product: (1) the product oil is mixed with another "carrier oil" and (2) the product oil is in the form of triglycerides. Claims 2 and 3 further identify the fatty acid in the stable oil, with claim 3 requiring arachidonic acid. Claim 6 requires that the oil contain no more than 10% LC-PUFA (that is, long chain polyunsaturated fatty acids - this is understood to mean that the no more than 10% of the unsaturated fatty acids in the oil are *not* present in the form of an ester, such as a glyceride). Claim 17 is a product containing the composition of claim 1, and is similar to claim 6. Claim 18 depends on claim 17, and requires the product to be infant foodstuff, nutritional composition, cosmetic composition, or foodstuff.

Claim 14 is similar to claim 1, except that it depends on process claim 7. As discussed above, in a product by process claim the process is not given any patentable weight, except to the extent that it patentably distinguishes a property of the product. The process of claim 7 appears to result in a product with the following properties: (1) it is an oil containing a long-chain unsaturated fatty acid, and (2) the unsaturated fatty acid is mixed with a carrier oil, and (3) long chain fatty acid is, at least partially, in the form of triglycerides, and (4) noxious smelling materials have been removed from the oil. Claim 15 is similar to claim 6, requiring no more than 10% LC-PUFA. Claim 16 is similar to claim 17. Claim 19 is a product made by the process of claim 7, and is similar to claim 14 except that it requires that the composition be an animal feed; this is

understood to mean that the product must be a composition that could be fed to animals.

2. The reasons for the rejection.

The 905 reference teaches an oil containing more than 20% by weight arachidonic acid and less than 0.8% unsaponifiable materials (claim 1), the arachidonic acid being present primarily in the form of a triglyceride (col. 6, lines 56 – 63), as required by claim 1. This is also understood to meet the requirement of claims 6 and 15, requiring less than 10% of the free acid. The oil components which are not arachadonic acid are understood to be the "carrier oil" of claim 1. The oil is treated by steam distillation for deodorization (example 1), thus fulfilling the final limitation of claim 7. The oil is preferably formulated as a food product, such as an infant or pregnant mother feeding composition (col. 6, lines 56 – 64), reading on claims 16 – 19. With regard to claim 19, because the composition is clearly suitable for feeding animals, including human animals, it is an "animal feed composition" as claimed. The product of the 905 reference is the claimed product, although it is obtained by a different method.

Claims 1 – 4, 6 and 14 - 19 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/65352 ("WO 327" or "the 327 reference").

The limitations of claims 1 – 3, 6, and 14 – 19 were discussed above. Claim 4 is similar to claim 3 except that claim 4 requires docosahexaenoic acid.

The 327 reference teaches an oil comprising arachadonic acid (called "ARA" in the reference) and similar materials, primarily (95% or more) in the form of a triglyceride (page 4, lines 1 - 7), meeting the requirements of less than 10% LC-PUFA. The ARA is

present in or in an oil (page 3, lines 24 - 25), which meets the requirement for a carrier oil. The other oils include docasahexanoic acid and eicosapentaenoic acid (page 11, lines 9 - 15). In this case, docasahexanoic acid meets the requirement of claim 4 and the eicosapentaenoic acid is the "carrier oil". Because the oil was obtained from a commercial source (page 11, lines 9 - 15), it is understood that impurities that cause unpleasant odor were removed, as required by claim 14. The oil is used in a composition for feeding marine organisms (abstract), and thus is a foodstuff or an animal feed, meeting the requirements of claims 16, 18 and 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over by US 6,117,905 to Higashiyama et al ("905" or "the 905 reference").

Claim 5 further specifies the nature of the carrier oil, including soya bean oil (soybean oil), palm olein and medium chain triacylglycerols, among others. The parent claim 1 is interpreted to require that the carrier oil be mixed with the fatty acid triglyceride.

Some of the teachings of the 905 reference were discussed above.

The 905 reference also suggests formulating the oil in such food products as margarine, mayonnaise, dressing sauce, soybean curd and processed soybean curd. The artisan understands that these food products typically contain ingredients such as soya bean oil (soybean oil) and medium chain triacylglycerols (see, for example, HELLMAN'S mayonnaise ingredients disclosure listed on PTO 892).

It would have been prima facie obvious to a person of ordinary skill in the art at the time of the invention to make a food product such as mayonnaise out of the oil of the 905 reference, thus forming the product of instant claim. Obviousness stems from the '905 reference's specific suggestion to make mayonnaise and similar food products with the oil. Because this manipulation is merely following an express suggestion of the art, the artisan would enjoy a reasonable expectation of success.

Claims 7 – 11, 13 – 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/21037 ("WO '037" or "the 037 reference") in view of US 4,465,699 to Pagliaro et al.

1. The claim limitations.

Claim 7 is a method of preparing a stable oil comprising the steps of: (1) bringing a carrier oil in contact with a biomass, (2) extracting triglycerides from the biomass and (3) separating and deodorizing the carrier oil. Claim 8 further requires grinding the biomass, claim 9 requires using high pressure, pressing and filtration, and claim 10 requires that grinding of the biomass under inert atmosphere. Claim 11 requires use of nitrogen atmosphere and tocopherols (antioxidants).

The limitations of the remaining claims have been discussed above.

2. The reasons for the holding of obviousness.

The 037 reference teaches methods for obtaining an arachadonic acid containing oil from a biomass (abstract). The oil is extracted with an organic solvent, such as hexane (page 13, lines 15 - 21). Pressing (the use of high pressure) and grinding during the extraction process is taught (page 13, lines 15 - 28). The extraction is preferably conducted under nitrogen, an inert atmosphere, in the presence of antioxidants (page 2, lines 1 - 15). In one embodiment, the arachadonic acid is obtained primarily as triglyceride (page 18, lines 8 - 17). Filtration is performed (Example 1). Purification and deodorizing are performed by acetone-clarification techniques (page 14). The resulting oil is made into products such as infant formula (claim 13); as these products are suitable to feed to animals, they read on the animal feed of claim 19.

What is lacking is the use of an oil, instead of an organic solvent such as hexanes, to perform the extraction.

Pagliaro teaches methods of extracting caffeine from coffee beans. Pagliaro teaches that, as an improvement upon older methods which used organic solvents, the artisan can use fatty materials, such as oils (col. 1 and 2). Oils such as soy bean oil are used, and appropriate temperatures are discussed (table 1). Advantages of using oils include low temperatures (table 1), and avoiding the use of detrimental solvents (col. 1, lines 40 - 47).

It would have been prima facie obvious to a person of ordinary skill in the art at the time of the invention to use oils, such as soy bean oil, to extract arachadonic acid

from a biomass instead of the hexanes used in WO 037. Obviousness stems from the idea that known work in one field or endeavor will prompt its use in either the same or different fields based on design incentives if the variations are predictable to one of skill in the art. In this case, extraction of caffeine, previously performed with organic solvents, is advantageously performed with oils. Because extraction is a fairly simple process, the artisan would predict that other materials that the art recognizes as extractable with organic solvents could also be extracted with oils, and that similar advantages would result. Additionally or in the alternative, the resulting process is obvious because it represents little more than the substitution of oils for hexane in an known process of obtaining materials such as arachadonic acid triglycerides from a biomass. The artisan would recognize that the improvements afforded by a similar substitution in the process of extracting caffeine are likely to carry over to other processes of extracting materials from biomasses that were formerly performed with organic solvents, such as the process of WO 037. As such, the artisan would enjoy a reasonable expectation of success.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/21037 ("WO '037" or "the 037 reference") in view of US 4,465,699 to Pagliaro et al as applied to claims 7 – 11, 13 – 16 and 19, above, and in further view of US 6,117,905 to Higashiyama et al ("905" or "the 905 reference").

The teachings of WO '037 and Pagliaro are discussed above.

What is lacking is a teaching of steam distillation

The teachings of the 905 reference are discussed above. Notably, '905 teaches the use of steam distillation for purifying crude arachadonic acid containing oils.

It would have been prima facie obvious to a person of ordinary skill in the art at the time of the invention to use steam distillation in the process of WO '037 and Pagliaro. The motivation comes from this step being known to be useful in purifying arachadonic acid containing oils. Because this is a well-understood, known manipulation in the art, the artisan would enjoy a reasonable expectation of success.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric E. Silverman, PhD whose telephone number is 571 272 5549. The examiner can normally be reached on Monday to Friday 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hartley can be reached on 571 272 0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Eric E. Silverman, PhD
Art Unit 1618



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SUPERVISORY PATENT EXAMINER